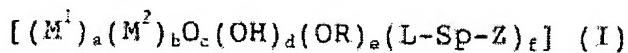


CLM PTO 09/14/04

1. Dental material containing a cluster according to the general formula



in which

M^1 , M^2 independently of each other, stand for a metal atom of the IIIrd or Vth main groups or the Ist to VIIth sub-groups of the periodic table;

R is an alkyl group with 1 to 6 carbon atoms;

L is a co-ordinating group with 2 to 6 complexing centres;

Sp is a spacer group or is absent;

Z is a polymerizable group;

a is a number from 1 to 20;

b is a number from 0 to 10;

c is a number from 1 to 30;

d, e independently of each other, are in each case a number from 0 to 30;

f is a number from 2 to 30,

any charge of the cluster (I) present being equalized by counterions.

2. Dental material according to claim 2, characterized in that the variables have the following meanings:

M¹, M² = independently of each other, Ti and/or Zr;
R = an alkyl group with 1 to 4 carbon atoms, in particular 1 to 2 carbon atoms;
L = α-hydroxycarboxylate (-CH(OH)-COO⁻),

α -aminocarboxylate ($-\text{CH}(\text{NH}_2)\text{-COO}^-$),
 β -diketonate ($[-\text{C}(-\text{O}^-)=\text{CH}-\text{C}(=\text{O})\text{R}^k]$);
with R^k = alkyl, preferably C_1 to C_6
alkyl, particularly preferably C_1 to
 C_3 alkyl, in particular methyl,
sulfonate ($-\text{SO}_3^-$) or phosphonate
($-\text{PO}_3^{2-}$), particularly preferably
carboxylate ($-\text{COO}^-$);

Sp = an alkylene group with 1 to 18
carbon atoms, an oxyalkylene group with
1 to 18 carbon atoms and 0 to 6 oxygen
atoms or an arylene group with 6 to 14
carbon atoms, the spacer Sp being able
to contain one or more, preferably 0 to
2 of the groups O, S, CO-O, O-CO, CO-
NH, NH-CO, O-CO-NH, NH-CO-O and NH;
particularly preferably, Sp is an
alkylene group with 1 to 6, in
particular 1 to 3 carbon atoms or is
absent;

z = an ethylenically unsaturated group,
an epoxide, oxetane, vinyl ether,
1,3-dioxolane, spiroorthoester,
particularly preferably a methacrylic
and/or acrylic group;

a = 2 to 11;

b = 0 to 4.

3. (Amended) Dental material according to claim 2, characterized in that L-Sp-Z stands for acrylate, methacrylate, oleate, allyl acetoacetate and/or acetoacetoxyethyl methacrylate.

4. (Amended) Dental material according to claim 2, characterized in that the clusters 1 to 4 contain kinds of ligands of the type L-Sp-Z.

5. (Amended) Dental material according to claim 2, characterized in that the cluster has a monodisperse mass distribution.

6. (Amended) Dental material according to claim 2, characterized in that the indices c to f assume values such that the positive charges of the metal or metals are completely equalized.

7. (Amended) Dental material according to claim 2, characterized in that M¹ is equal to M².

8. (Amended) Dental material according to claim 2, characterized in that it contains one or more further polymerizable components.

Art Unit: ***

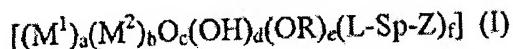
9. (Amended) Dental material according to claim 8, characterized in that the further polymerizable component is a polymerizable polysiloxane, an ionically and/or radically polymerizable organic monomer or a mixture thereof.

10. (Amended) Dental material according to claim 2, characterized in that it contains an initiator for ionic and/or radical polymerization, filler and/or further additives.

11. (Amended) Dental material according to claim 1, characterized in that it contains, relative to its overall mass

- (a) 5 to 90 wt.-% of at least one cluster according to formula (I),
- (b) 10 to 90 wt.-% of a further polymerizable component,
- (c) 0.1 to 5.0 wt.-% polymerization initiator, and
- (d) 0 to 90 wt.-% filler.

12. (Amended) A cluster of the general formula



in which

Art Unit: ***

M^1, M^2	independently of each other, stand for a metal atom of the IIIrd or Vth main groups or the 1st to VIIth sub-groups of the periodic table;
R	is an alkyl group with 1 to 6 carbon atoms;
L	is a co-ordinating group with 2 to 6 complexing centres;
Sp	is a spacer group or is absent;
Z	is a polymerizable group;
a	is a number from 1 to 20;
b	is a number from 0 to 10;
c	is a number from 1 to 30;
d, e	independently of each other, are in each case a number from 0 to 30;
f	is a number from 2 to 30,

any charge of the cluster (I) present being equalized by counterions, comprising a dental material which is an adhesive, coating material, cement or filling material.

Claim 13 is cancelled